

Homework 1	
Not all stored patterns are local minima of the energy function	T
All stored patterns are local minima of the energy function	F
One feeds a distorted pattern into the network by applying Hebb's rule	F
One feeds a distorted pattern into the network by setting the neuron states equal to the bits in the pattern	T
Not all local minima of the energy function of the Hopfield network correspond to stored patterns	T
All local minima of the energy function of the Hopfield network correspond to stored patterns	F
In the limit of $\alpha \rightarrow 0$ the one-step error probability for mixed states in the deterministic Hopfield network vanishes	T
In the limit of $\alpha \rightarrow 0$ the one-step error probability for mixed states in the deterministic Hopfield network does not vanish	F
The stochastic update rule for the Hopfield network is different from the Metropolis algorithm	T
The stochastic update rule for the Hopfield network is identical to from the Metropolis algorithm	F
That the energy cannot increase under the deterministic Hopfield dynamics is a consequence of the fact that the diagonal weights F	F
That the energy cannot increase under the deterministic Hopfield dynamics holds also when the thresholds are not zero	T
That the energy function cannot increase under the deterministic Hopfield dynamics is valid only if the thresholds are put to zero	F
The detailed balance condition is a necessary condition for the Markov-Chain Monte-Carlo algorithm to converge	F
The detailed balance condition is a sufficient condition for the Markov-Chain Monte-Carlo algorithm to converge	T
The mean-field theory for the Hopfield network does not yield the exact value for the critical storage capacity	T
The mean-field theory of the Hopfield network yields the exact value for the critical storage capacity	F
In the limit of $N \rightarrow \infty$ the order parameter m_μ can have at most one component of order unity, the other components are small	F
In the limit of $N \rightarrow \infty$ the order parameter m_μ can have more than one component of order unity, the other components are small	T
For a given α , the one-step error probability for the deterministic Hopfield network is higher when the diagonal weights are set	T

For a given α , the one-step error probability for the deterministic Hopfield network is **lower** when the diagonal weights are set to **F**